

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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In the Matter of)	
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Amendment of Part 73 to Permit Permanent)	RM-11779
Licensing of AM Synchronous Booster Stations.)	
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COMMENTS OF COMMUNICATIONS TECHNOLOGIES, INC.

INTRODUCTION

Communications Technologies, Inc. ("CTI") herein submits its Comments in the above captioned Proceeding wherein the Federal Communications Commission ("FCC") seeks to consider information regarding the establishment of technical standards governing the operation of Synchronous AM transmitters. CTI is a broadcast engineering consulting firm formed in 1985 and which has practiced before the FCC continuously since its inception. During that time period the firm has filed hundreds of FCC applications for construction permit and license for both commercial and non-commercial radio and TV broadcast stations and participated in numerous Rule Making proceedings.

MM DOCKET NO. 87-6 HISTORY

In MM Docket No. 87-6 the FCC sought to develop rules for Synchronous AM transmitter operation by AM Broadcast Stations. The FCC closed the proceeding in a MO&O released on January 13, 1989 which concluded with the following statement:

“Having carefully considered the comments filed in response to the Inquiry, the Commission concludes that current transmitter synchronization technology does not warrant continuing this proceeding to the rule making stage at this time.”

Review of the FCC Summary of Comments in the Proceeding revealed a lack of consensus concerning the use of phase versus frequency synchronization. No consensus regarding frequency stability or audio synchronization was found. There was general agreement regarding use of the current FCC contour protection standards for full power stations, that the interfering contour of Synchronous AM transmitters not extend beyond the parent stations’ and that the licensee of the parent station be the licensee of the Synchronous AM transmitter.

The FCC adopted the Notice of Inquiry in MM Docket No. 87-6 on January 15, 1987, just short of twenty years ago. Needless to say technology has changed in the last twenty years and the problems that existed may well have solutions today. In paragraph 23 of the MO&O it is stated “we wish to express our commitment to cooperating with the broadcast industry in exploring ways of deriving the maximum possible benefits from transmitter synchronization technology” and “...we...will revisit this matter when the circumstances appear appropriate.” CTI appreciates the FCC having opened the subject for further discussion and input.

AM SYNCHRONOUS TECHNOLOGY POTENTIAL TODAY

The 1989 MO&O created an environment that did not encourage AM Synchronous Transmitter

development. However, significant changes in both the electronics and broadcast industries have taken place which now make synchronization cost effective and relatively easy to implement. These include:

1. FM Booster systems have proliferated in the last twenty years to the extent that a search of the CDBS for FM Booster service brought up 1,737 records. Technology changes have refined the design of booster systems to minimize mutual interference and the development of analog and digital booster technology is still ongoing as witnessed in papers presented at the Fall IEEE Broadcast Technology Symposium in Hartford, Connecticut. Much of this technology can be applied to AM synchronous transmitters.
2. A visit to www.AES.Org/networkaudio offers an open door to current standards such as AES67-2013 high-performance streaming audio-over IP interoperability for transmitting audio over local and wide area networks addressing issues such as synchronization, media clock identification, encoding and streaming which are needed for all synchronous transmitters.
3. The FCC adopted standards for TV booster stations (distributed transmission systems – DTS) in FCC MB Docket No. 05-312 in 2008. The work done there is believed applicable to AM Synchronous transmitters and includes the following provisions:
 - Unlike conventional DTV broadcast stations that use a single transmitter, DTS technology would employ multiple synchronized transmitters spread around a station's authorized service area. Each transmitter would broadcast the station's DTV signal on the same channel. The DTS signals from the multiple

transmitters would be synchronized, allowing DTV receivers to treat the multiple signals as reflections or ghosts that can be cancelled or combined by the receivers' adaptive equalizer circuitry to produce a single signal.

- DTS will provide broadcasters with an important tool for providing the best possible signal coverage for their viewers. For some broadcasters that are changing channels or transmitting locations for their digital service, DTS may offer the best option for continuing to provide over-the-air service to current analog viewers, as well as for reaching viewers that have historically been unable to receive a good signal due to terrain or other interference.
- Defined a DTS service area as being comparable to that of a station's single transmitter facility, and, to implement this approach, determined a station's potential maximum authorized service area using the "Table of Distances" proposed in the DTS Notice.
- Required that DTS transmitters be located within either the DTV station's Table of Distances area or its authorized service area.
- Afforded primary regulatory status to the multiple transmitters used in a DTS network within the areas that such DTS transmitters are authorized to serve.
- Evaluated DTS proposals using the same interference standard adopted for single transmitter stations, and adopted the root-sum-square ("RSS") method of calculating interference from multiple DTS transmitters.
- DTV broadcast stations that want to operate their DTV facility using DTS technologies must apply for such facilities using FCC Form 301.

AM SYNCHRONOUS TECHNOLOGY – CURRENT NEED


One of the greatest problems facing AM station licensees today, as well as wireless providers including cellular and PCS operators, is the immense cost and delays involved in finding sites for towers and then obtaining local regulatory approval for new facility construction. The costs and delays are multiplied many times over when multi-tower directional arrays are required. Recent rule changes which took place in the FCC MB Docket No. 13-249, Revitalization of the AM Radio

Service, such as change in city of license coverage requirements and reduction in AM antenna system efficiency requirements are modest tools to help stations in locating or relocating to suitable sites. It is hoped that the Commission will issue a Second Report and Order in the near future which relaxes allocation protection standards for Class B, C and D stations. These changes, along with clear but simple guidelines for AM Synchronous transmitter operation could lead to permanent installations which better serve the public and reduce the current burden on FCC staff processing STA's for temporary transmission facilities.

CONCLUSION

CTI respectfully urges the FCC to further investigate and establish rules providing for the application, construction and licensing of AM Synchronous transmitter sites in a manner similar to current rules for DTS facilities.

Respectfully Submitted,



By _____

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